indentation **542** in the concave surface **226** also creates a localized increased volume of the tear film **40** near the sensor electrodes **520**, **522**. The volume of analyte tear film that contributes analytes to the electrochemical reaction at the working electrode **520** (e.g., by diffusion) is thereby increased. The sensor shown in FIG. **5**B is therefore less susceptible to a diffusion-limited electrochemical reaction, because a relatively greater local volume of tear film surrounds the sampled region to contribute analytes to the electrochemical reaction.

[0080] FIG. **5**C shows an example configuration in which an electrochemical sensor detects an analyte from the tear film **40** that diffuses through a thinned region **542** of the polymeric material **220**. The thinned region **542** can be formed as an indentation **540** in the concave surface **226** (e.g., by molding, casting, etc.). The thinned region **542** of the polymeric material **220** substantially encapsulates the electrodes **520**, **522**, so as to maintain a biocompatible coating between the cornea **20** and the working electrodes **520**, **522**. The indentation **542** in the concave surface **226** also creates a localized increased volume of the tear film **40** near the sensor electrodes **520**, **522**. A directional arrow **544** illustrates the diffusion of the analyte from the inner tear film layer **40** to the working electrode **520**.

[0081] FIG. **5**D shows an example configuration in which an electrochemical sensor detects an analyte that diffuses from an outer tear film **42** layer through a polymeric material **220**. The working electrode **520** and the reference electrode **522** are each mounted on an outward-facing side of the substrate **230** (e.g., the outward-facing surface **234** discussed in connection with FIG. **2** above). The electrodes **520**, **522** of the electrochemical sensor are entirely covered by an overlapping portion **554** of the polymeric material **220**. The electrodes **520**, **522** in the electrochemical sensor are thus separated from the outer tear film layer **42** by the thickness of the overlapping portion **554**. The thickness of the overlapping region **554** can be approximately 10 micrometers, for example. An analyte in the outer tear film layer **42** diffuses through the overlapping portion **554** to the working electrode **520**. The diffusion of the analyte from the outer tear film layer **42** to the working electrode **520** is illustrated by the directional arrow **560**.

[0082] FIG. **5**E shows an example configuration in which an electrochemical sensor detects an analyte in an outer tear film layer **42** that contacts the sensor via a channel **562** in a polymeric material **220**. The channel **562** connects the convex surface **224** of the polymeric material **220** to the substrate **230** and/or electrodes **520**, **522**. The channel **562** can be formed by pressure molding or casting the polymeric material **220** for example. The height of the channel **562** corresponds to the separation between the outward-facing surface of the substrate **230** (e.g., the outward-facing surface **234** discussed in connection with FIG. **2** above) and the convex surface **224**. That is, where the substrate **230** is positioned about 10 micrometers from the convex **224**, the channel **562** is approximately 10 micrometers in height. The channel **562** fluidly connects the outer tear film layer **42** to the sensor electrodes **520**, **522**. Thus, the working electrode **520** is in direct contact with the outer tear film layer **42**. As a result, analyte transmission to the working electrode **520** is unaffected by the permeability of the polymeric material **220** to the analyte of interest. The channel **562** in the convex surface **224** also creates a localized increased volume of the tear film **42** near the sensor electrodes **520**, **522**. The volume of analyte tear film that contributes analytes to the electrochemical reaction at the working electrode **520** (e.g., by diffusion) is thereby increased. The sensor shown in FIG. **5**E is therefore less susceptible to a diffusion-limited electrochemical reaction, because a relatively greater local volume of tear film surrounds the sampled region to contribute analytes to the electrochemical reaction.

[0083] FIG. **5**F shows an example configuration in which an electrochemical sensor detects an analyte that diffuses from an outer tear film layer **42** through a thinned region of a polymeric material **220**. The thinned region **556** can be formed as an indentation **564** in the convex surface **224** (e.g., by molding, casting, etc.). The thinned region **556** of the polymeric material **220** substantially encapsulates the electrodes **520**, **522**. The indentation **564** in the convex surface **224** also creates a localized increased volume of the tear film **42** near the sensor electrodes **520**, **522**. A directional arrow **566** illustrates the diffusion of the analyte from the outer tear film layer **42** to the working electrode **520**.

[0084] FIGS. **5**A through **5**C illustrate arrangements in which an electrochemical sensor is mounted on a surface of the substrate **230** proximate the concave surface **226** (e.g., the inward-facing surface **232** discussed in connection with FIG. **2** above). An electrochemical sensor arranged as shown in FIGS. **5**A through **5**C is thus configured to detect an analyte concentration of the inner tear film layer **40**, which diffuses into the polymeric material **220** from the concave surface **226**. FIGS. **5**D through **5**F illustrate arrangements in which an electrochemical sensor is mounted on a surface of the substrate **230** proximate the convex surface **224** (e.g., the outward-facing surface **234** discussed in connection with FIG. **2** above). An electrochemical sensor arranged as shown in FIGS. **5**D through **5**F is thus configured to detect an analyte concentration of the outer tear film layer **42**, which diffuses into the polymeric material **220** from the convex surface **224**. By situating the electrochemical sensor on the outward-facing surface of the substrate **230**, as shown in FIGS. **5**D through **5**F, for example, the electrodes **520**, **522** are separated from the cornea **20** of the eye **10** by the substrate **230**. The substrate **230** can thus shield the cornea **20** from damage associated with direct exposure to the electrodes **520**, **522**, such as may occur due to puncturing or wearing through the polymeric material **220**, for example.

V. Example Microelectrode Arrangements

[0085] FIG. **6**A illustrates one example arrangement for electrodes in an electrochemical sensor **601**. The arrangement illustrated by FIG. **6**A is not drawn to scale, but instead is provided for explanatory purposes to describe an example arrangement. The electrochemical sensor **601** can be included in an eye-mountable device for detecting a tear film concentration of an analyte (e.g., the eye-mountable devices described in connection with FIGS. **1**-**3** above). The electrochemical sensor includes a working electrode **620** and a reference electrode **622** arranged as conductive bars disposed on a substrate. The conductive bars can be arranged in parallel such that the separation between the electrodes **620**, **622** is substantially uniform along the respective lengths of the electrodes **620**, **622**. In some embodiments, at least one of the dimensions of the working electrode **620**, such as its width, can be less than 100 micrometers. In some embodiments, the working electrode **620** is a microelectrode with at least one dimension of about 25 micrometers. In some embodiments, the working electrode **620** is a microelectrode with at least